LIST OF CONTENTS

NUMBER 1

	i	Announcement
K. Lee	1	An efficient solution method for frictional contact problems
G. D. Stefanou	13	Approximate methods for predicting time varying stresses in highly redundant structures
G. C. Onwubolu	31	Finite element mesh generation of 3D-surfaces in CAD
W. X. Zhong and **S. M. Sun**	37	A parametric quadratic programming approach to elastic contact problems with friction
M. R. Banan, G. Karami and **M. Farshad**	45	Finite element analysis of curved beams on elastic foundations
X. X. Wang, J. Qian and **M. G. Huang**	55	A new algorithm and application to free vibration analysis using boundary/interior elements approach
L.-W. Chen and **J.-R. Hwang**	63	Finite element analysis of thick annular plates under internal forces
M. E. M. El-Sayed, B. J. Ridgely and **E. Sandgren**	69	Nonlinear structural optimization using goal programming
H. A. El-Ghazaly and **G. R. Monforton**	75	Analysis of flexible frames by energy search
S. F. Jóźwiak	87	Probability-based optimization of truss structures
J. Padovan and **A. Kazempour**	93	Multibody instantly centered moving Lagrangian observer schemes—part I. Formulation
A. Kazempour and **J. Padovan**	101	Multibody instantly centered moving Lagrangian observer schemes—part II. Application to vehicular simulations
T.- C. Cheu, B. P. Wang and **T.-Y. Chen**	113	Design optimization of gas turbine blades with geometry and natural frequency constraints
A. Shirazi-Adl	119	Nonlinear finite element analysis of wrapping uniaxial elements
J.-P. Jeusette, G. Laschet and **S. Idelsohn**	125	An effective automatic incremental/iterative method for static nonlinear structural analysis
S. K. Pascoe and **J. E. Mottershead**	137	Two new finite element contact algorithms

Y. Liu and **K. Chen**	145	More findings in using the program, "a versatile two-dimensional mesh generator with automatic bandwidth reduction"
M. Papia	149	An alternative analysis model for composite wall–beam systems
A. E. Giannakopoulos	157	The return mapping method for the integration of friction constitutive relations
A. G. Razaqpur and **M. Nofal**	169	A finite element for modelling the nonlinear behavior of shear connectors in composite structures
Y. Reich and **M. B. Fuchs**	175	A comparison of explicit optimal design methods
X.-J. Zheng and **Y.-H. Zhou**	185	Analytical computerization method of solving a kind of nonlinear equation of plates and shells
S. Sivasubramaniyam and **M. Wieland**	195	Inelastic response of a simple arch dam due to differential foundation movements
A. R. Kukreti	201	Dynamic response analysis of nonlinear structural systems subject to component changes
P. Hajela and **C.-J. Shih**	213	Optimal design of laminated composites using a modified mixed integer and discrete programming algorithm
S. C. Shyu, T. Y. Chang and **A. F. Saleeb**	223	Friction-contact analysis using a mixed finite element method
		Technical Notes
G. Chandrasekharappa and **H. R. Srirangarajan**	243	Large amplitude vibration of elastic plates
S. Nomura and **B. P. Wang**	245	Free vibration of plate by integral method
	I	Software survey section

NUMBER 2

	i	Announcement
Y. Ding	249	Multilevel optimization of frames with beams including buckling constraints
A. L. Eterovic and **L. A. Godoy**	263	An exact strip method for folded plate structures
K. L. Lawrence and **R. V. Nambiar**	277	Explicit expressions for element coordinate transformations by symbolic manipulation
J. Yu and **N. Jones**	281	Numerical simulation of a clamped beam under impact loading

C.-K. Choi and **Y.-M. Park**	295	Nonconforming transition plate bending elements with variable mid-side nodes
R. Lewandowski	305	Nonlinear free vibrations of multispan beams on elastic supports
G. J. E. Kramer and **D. E. Grierson**	313	Computer automated design of structures under dynamic loads
Y. K. Cheung and **C. Wanji**	327	Hybrid quadrilateral element based on Mindlin/ Reissner plate theory
M. Mukhopadhyay	341	Vibration and buckling of rectangular plates with varying degrees of rotational restraint along the edges
C. Farhat	347	On the mapping of massively parallel processors onto finite element graphs
B. A. J. Mustafa and **R. Ali**	355	An energy method for free vibration analysis of stiffened circular cylindrical shells
J. A. Free and **R. F. D. Porter Goff**	365	Predicting residual stresses in multi-pass weldments with the finite element method
H. Schoop	379	A simple nonlinear flat element for large displacement structures
T. Y. Kam and **R. R. Chang**	387	Optimal design of laminated composite plates with dynamic and static considerations
L. E. Doxsee, Jr and **G. S. Springer**	395	Hygrothermal stresses and strains in axisymmetric composite shells
A. R. Kukreti, T. M. Murray and **M. Ghassemieh**	409	Finite element modeling of large capacity stiffened steel tee-hanger connections
A. K. Aditya and **J. N. Bandyopadhyay**	423	Study of the shell characteristics of a paraboloid of revolution shell structure using the finite element method
W. H. Greene and **R. T. Haftka**	433	Computational aspects of sensitivity calculations in transient structural analysis
V. A. K. Reddy, R. Kumar and **S. P. Sharma**	445	Mesh generation and graphic check for 3D building frames
J. G. Teng and **J. M. Rotter**	453	Non-symmetric bifurcation of geometrically nonlinear elastic–plastic axisymmetric shells under combined loads including torsion
V. Omprakash and **V. Ramamurti**	477	Dynamic stress analysis of rotating turbo-machinery bladed-disk systems
		Technical Notes
A. Raman	489	Regional scaling by finite element method

G. Gajer and P. Dux 493 A damage-sensitive loading algorithm for the analysis of reinforced concrete structures

Announcement

497 Plasticity '89. The 2nd International Symposium on Plasticity and its Current Applications, 31 July–4 Aug 1989, Mie University, Tsu, Mie Prefecture, Japan

I Software survey section

NUMBER 3/4

NONLINEAR FINITE ELEMENT ANALYSIS AND ADINA

Announcement v
K. J. Bathe: Preface vii
K. J. Bathe and J. Dong: Studies of finite element procedures—the use of ADINA-F in fluid flow analyses 499
N. Alberti, L. Cannizzaro, E. Lo Valvo and F. Micari: Analysis of metal spinning processes by the ADINA code 517
A. D. Gupta, H. L. Wisniewski and R. L. Bitting: Response of a generic vehicle floor model to triangular overpressure loads 527
M. Fujikake, O. Kojima and S. Fukushima: Analysis of fabric tension structures 537
F. Tabaddor: Finite element analysis of a rubber block in frictional contact 549
K. J. Bathe, J. Walczak, A. Welch and N. Mistry: Nonlinear analysis of concrete structures 563
J. F. D. Rodrigues and T. E. C. Gmür: The solution of large undamped gyroscopic eigensystems by a subspace iteration method 591
J. E. Crawford and R. D. Jones: Shock isolation systems modeled with ADINA 601
J. W. Tedesco, C. A. Ross and R. M. Brunair: Numerical analysis of dynamic split cylinder tests 609
J. W. Tedesco and D. W. Landis: Wave propagation through layered systems 625
D. Siegele: 3D-crack propagation using ADINA 639
R. Houlston: Finite strip analysis of plates and stiffened panels subjected to air-blast loads 647
C. J. Gantes, J. J. Connor, R. D. Logcher and Y. Rosenfeld: Structural analysis and design of deployable structures 661
F. Angeleri, V. Sonnad and K. J. Bathe: Studies of finite element procedures—an evaluation of preconditioned iterative solvers 671
J. R. Mays, D. A. Dollar and L. H. Roehm: A concrete cracking analysis for the proposed arch raise of Roosevelt Dam 679
J. S. Arora and J. E. B. Cardoso: A design sensitivity analysis principle and its implementation into ADINA 691
K. S. Sivakumaran: Analysis for web crippling behaviour of cold-formed steel members 707
F. G. Laturelle: Finite element analysis of wave propagation in an elastic half-space under step loading 721
E. Keim and G. Müller: Nonlinear analysis of fracture mechanics problems 737
J. M. Santiago and H. L. Wisniewski: Convergence of finite element frequency predictions for a thin walled cylinder 745
B. C. Nichols and G. Bassi: Use of ADINA to model large deformation of the earth's lithosphere 761
Y. Chen and T. Krauthammer: A combined ADINA–finite difference approach with substructuring for solving seismically induced nonlinear soil–structure interaction problems 779
F. G. Rammerstorfer, K. Dorninger, H. J. Böhm and F. Zerobin: Analysis of frictional contact problems in high field superconducting magnets for a hadron collider 787

K. J. Bathe, F. Brezzi and S. W. Cho: The MITC7 and MITC9 plate bending elements 797
B. R. Bass, J. Keeney-Walker, T. L. Dickson, C. E. Pugh, C. W. Schwartz and J. C. Thesken: Applications of ADINA to viscoplastic–dynamic fracture mechanics analysis 815
R. E. Mandeville: Design of low stress diaphragms using the contact algorithms in ADINA 825
T. Weller, H. Abramovich and R. Yaffe: Dynamic buckling of beams and plates subjected to axial impact 835
S. Subramanyam and W. D. Rolph: Thermal analysis of direct chip mount electronic systems using ADINA-T 853
M. Sekulović and B. Pujević: Nonlinear analysis of reinforced concrete thin-walled beams and frames 861
N. Suzuki and M. Nasu: Non-linear analysis of welded elbows subjected to in-plane bending 871
V. Kumar, S.-J. Lee and M. D. German: Finite element design sensitivity analysis and its integration with numerical optimization techniques for structural design 883
B. Häggblad and G. Nordgren: Automatic load incrementation for rubber-like bodies in contact 899
S.-W. Chae and K. J. Bathe: On automatic mesh construction and mesh refinement in finite element analysis 911

NUMBER 5

i Announcement

S. Liu 937 A finite element analysis procedure using simple quadrilateral plate/shell elements

S. S. Qaqish 945 Nonlinear structural analysis of a conservative system

Cao Li 953 TAP-86: a three-dimensional frame analysis program for tall buildings

N. E. Shanmugam, R. Huang, C. H. Yu and **S. L. Lee** 963 Corner supported isosceles triangular orthotropic plates

I. Senjanović and **Y. Fan** 973 A higher-order flexural beam theory

L.-W. Chen and **J.-Y. Yang** 987 Nonconservative stability of a bimodulus beam subjected to a follower force

H. W. Wu and **C. P. Chiu** 997 Finite element model for thermal system in real time operation diesel piston

Z. H. Li and **D. R. J. Owen** 1005 Elastic–plastic analysis of laminated anisotropic shells by a refined finite element laminated model

L. H. de Figueiredo and **M. Gattass** 1025 A database management system for efficient storage of structural loadings

S. Krenk and **B. Jeppesen** 1035 Finite elements for beam cross-sections of moderate wall thickness

D. J. Allman 1045 Calculation of the stable equilibrium paths of discrete conservative systems with singular points

Xu Jiaxian	1055	An improved method for partial eigensolution of large structures
C. Ruiz, F. Salvatorelli-D'Angelo and **V. K. Thompson**	1061	Elastic response of thin-wall cylindrical vessels to blast loading
Wang Shoumei	1073	A conception of module library and data base management system for finite element analysis
O. P. Agrawal and **R. Kumar**	1085	A superelement model for analysis of multi-body system dynamics
W. Szyszkowski, L. G. Watson and **B. Fietkiewicz**	1093	Bimodal optimization of frames for maximum stability
Y. L. Pi and **N. C. Mickleborough**	1105	Modal identification of a vibrating structure in the time domain
K. R. Thangaratnam, Palaninathan and **J. Ramachandran**	1117	Thermal buckling of composite laminated plates
T. Kant and **Mallikarjuna**	1125	A higher-order theory for free vibration of unsymmetrically laminated composite and sandwich plates—finite element evaluations
J. Padovan, D. Gute and **K. Johnson**	1133	Hierarchical poly tree computer architectures defined by computational multidisciplinary mechanics
J. W. Tedesco, D. W. Landis and **C. N. Kostem**	1165	Seismic analysis of cylindrical liquid storage tanks
D. P. Thambiratnam and **H. M. Irvine**	1175	Microcomputer analysis of torsionally coupled multistorey buildings—I. Shear beam model
K. K. Tamma and **K. C. Saw**	1183	Hierarchical *p*-version finite elements and adaptive *a posteriori* computational formulations for two-dimensional thermal analysis
		Technical Note
C. R. Chiang	1195	A numerical method for solving elastic fracture problems
G. J. Simitses	1199	Letter to the Editor
	1200	Erratum
	1201	Announcements
	I	Software Survey Section

NUMBER 6

	i	Announcement
S. E. El-Metwally and W.-F. Chen	1203	Nonlinear behavior of R/C frames
S. K. Sharan	1211	Hydrodynamic loadings due to the motion of large offshore structures
S. A. AlGhamdi	1217	The analysis of two-way linearly tapered columns
K. Y. Yuan and C. C. Liang	1225	Nonlinear analysis of an axisymmetric shell using three noded degenerated isoparametric shell elements
L. S. Chen, H. S. Chu and J. H. Wu	1241	Analysis of thermal stresses due to moving frictional load in an infinite elastic layered medium
M. Eisenberger and A. Liberman	1249	Torsion of perforated cores: planar formulation
O. Schreiber	1255	Solving the two-dimensional Laplace problem on a polygonal domain with mixed Dirichlet–Von Neumann boundary conditions and using a self-refining boundary element mesh
T. Kusama, T. Ohkami and Y. Mitsui	1267	Application of the finite Fourier series to the boundary element method
W.-H. Chen and T.-F. Huang	1275	Three dimensional interlaminar stress analysis at free edges of composite laminate
S. H. Lee	1287	Rudimentary considerations for effective line search method in nonlinear finite element analysis
J. Petrolito	1303	A modified ACM element for thick plate analysis
S. Panayiotou and K. Nakagawa	1311	A method for minimization of the square sum of the natural periods of vibration of a frame
J. Kujawski, C. S. Desai and C. Miedzialowski	1319	Evaluation of various integration algorithms for transient inelastic response of shear walls
A. R. Kukreti, A. S. Khan and A. Kumar	1325	A three-dimensional finite element program to predict ultimate fracture failure load
M. El-Sheikh and W.-F. Chen	1347	Maximum probabilistic shore load in multistorey R/C buildings
K. V. R. Vardhani and N. Siva Prasad	1359	Mesh generation for spherical and conical surfaces using transfinite interpolation
S. Swaddiwudhipong, S. Piriyakoontorn, Y.-B. Lim and S.-L. Lee	1363	Analysis of tall buildings considering the effect of axial deformation by the Galerkin method

M. A. Dokainish and K. Subbaraj 1371 A survey of direct time-integration methods in computational structural dynamics—I. Explicit methods

K. Subbaraj and M. A. Dokainish 1387 A survey of direct time-integration methods in computational structural dynamics—II. Implicit methods

E. R. Christensen 1403 Finite element analysis of maneuvering spacecraft truss structures

J. Jirousek and A. Venkatesh 1413 Generation of optimal assumed stress expansions for hybrid-stress elements

K. M. Tarhini and G. R. Frederick 1419 Load distribution on highway bridges using ICES-STRUDL finite element analysis

C. K. Choi and J. S. Ahn 1429 A coupled formulation of finite and boundary element methods in two-dimensional elasticity

Y. W. Kwon 1439 Finite element analysis of crack closure in plate bending

G. Burgess 1447 Theoretical development for the state of stress along weld lines connecting plane rigid surfaces

I Software Survey Section

i List of Contents and Author Index for Volume 32, 1989